Timex Sinclair User Group NEWSLETTER

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Ottawa Chapter
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MEETINGS

LOCATION: All meetings are held at the NRC bldg. 100 Sussex Dr. 1120B. Check in with Security.
TIME: Meetings are held at 8:00 p.m. on the last Thursday of each month unless otherwise posted.
FORMAT: Each meeting will take the following format;

1) President's address and intro of new members.
2) Software review (max. 20 min.)
3) Hardware review (max. 20 min.)
4) Administrative business- if required.
5) Adjournment of formal part of meeting.
6) Informal: members discuss common problems, swap programs etc....

PRESIEDNT'S ADDRESS

Contrary to my expectations, we've had good turnouts at at our June and July meetings; Good show!- with interest like this, we'll be the strongest and most active group in the OCG.

As you've probably noticed, Jim Hodgson has been too busy with more important matters to attend to his duties as Hardware Chairman with the result that we've had no hardware presentations recently. I'm sure Jim would apreciate hearing from some of you Hardware buffs to lend a helping hand. By the way of interest, Jim is a new father of a child with internal plumbing as of 13 July. Congratulations Jim and Missus.

Our software and technicl library is not growing at a very rapid pace. At the moment it contains but one book that I donated. As a start, perhaps someone can gather up copies of back issues of SYNTAX, 50 and SYNC and photocopy the better articles. I have several copies of SYNTAX and SYNC that I would be willing to loan for this purpose. *Editor's note: I have a veritable library also. End note* Anyone interested in assuming this responsibility please contact me. First come first served so hurry if you want this interesting job.

Lists containing books, hardware and software holdings of each member are trickling in; don't forget to send in your list.

For those of you who were not able to attend the last meeting, we've decided to launch a software development contest and all members are invited to participate. There will be a small entrance fee to defray the cost of the prizes. The biggest benefit of this contest will be the software that will be added to the library for the use of all members. See Roger Glover's article for more details. Let's have a good response to this contest.

At the last meeting we also decided that it would be helpfull to the presenters if the club had a television set to go along with the computer. Anyone knowing where we can obtain a small (light) TV at a nominal fee or better yet, FREE, please contact your executive.

I finally received my MD-68 Modem for my 2068 computer. After spending six hours putting the kit together, it did'nt work. I think there was rust in the chips but I couldn't find any grease nipples so I packed it off to the manufacturer for repairs since it was still under warranty. The kit was easy to assemble, too bad it didn't work. All it would do is run off at the mouth continuously in some foreign language like an old woman.

I also received a copy of the Advanced Technical Manual for the 2068. What a wealth of information it contains. When I have time to copy the book, I'll put a copy in the library.

I've been using the HOT Z Assembler/Disassembler for a month now and it's the cat's meow. At the beginning it seemed that there were too many key strokes to effect the various functions, however these are second nature to me now.

John Mathewson

PRES.

LETTERS TO THE EDITOR

FROM: Russ Evoy

Since many software companies may be going out of business, or have done so already, a number of software programs would fall into the public domain catagory.There is therefore the possibility for the club to provide at a nominal fee, to cover costs of tapes, copying services of these programs. Should the club agree, this may be one method to assist less wealthy members of obtaining software and hopefully learning programming far quicker.

As a second suggestion, assistance could be provided either by specific knowledgeable members or through the newsletter to answer questions on particular hardware or software problems that any member may come accross. This may stimulate conversations between members as compared to the Group Executive being the only active participants.

FROM: David Solly

I have two suggestions for the consideration of the Club: 1) that programs for other machines that a member has converted could be included in the newsletter with an explanation of the converstion methods. This would provide members with ideas on how to convert basic functions that are lacking on the Timex machine.

2) That references to the Timex/Sinclair machines in mags or books or other hardcopy media be aggragated and published in the newsletter. In this way a data base of reference material and who has them can be established. This task can be done by myself should the club so wish. David

TIPS ON THE HUNTER BOARD

From Marcel Boult

The board is subject to the "WOBBLES" just as the Ram Paks are. The Reset button and the Write protect switch mounted on the board tend to aggravate the situation. Eliminate the problem by "sandwitching" the Hunter board between two components, ie..computer on one side and say the printer on the other. The printer interface can be raised using stick on felt or rubber pads to place it at the correct height.
Set the Write protect switch in the "read only" position when the computer is not in use, otherwise the on-board battery will be exausted in 6 to 8 weeks.
One last item: operating the Write protect switch while saving or loading may result in a crash.

SOFTWARE REVIEWS

SEA WOLF

By Jim Turner

I had the opportunity the other day to try out a program called "Sea Wolf". If you shold get the chance to do the same, don't pass it up...it's a real honey. It starts up automaticly on loading with a very impressive graphic of bubbles rising to form the words "Sea Wolf". This is followed by a very short explanation of your situation and the inevitable PRESS ANY KEY TO START. Now it really gets good.

A real-time representation of a SONAR screen, complete with sweep scan and little blips that fade shortly after the sweep leaves. If you are at periscope depth, a touch of "P" will reward you with a 3D view of the surface in your area. You can change the direction your periscope is pointing with the "N" and "M" keys but note, this doesn't change your sub's heading and consequently, just because you have an enemy ship lined up in your sights, your torpedoes might not be aimed there. The heading of your sub determines where your torpedeos go.

Obviously, the object of the game is to locate the enemy ships with the SONAR, get a bearing on them with your periscope, match your heading to that bearing then fire your torpedoes. All this done, you will see your torpedoes converge on the target, strike and the ship is destroyed.

It's a bit more difficult than that though. Your air supply must be replenished periodically with your snorkle, and only at periscope depth. There are depth charge attacks that must be avoided and the enemy ships don't just sit there....they move around pretty quickly, especialy in the upper levels of play.

All in all,it is a very good, well written simulation which makes excellent use of the limited graphics of the Sinclair machine. It's fun to play and challenging too. Try it if you can.... You'll like it.

COUPON MANAGER

Distributor: TIMEX
Memory: 16k
Language: Basic + Machine code

I picked up "COUPON MANAGER" from a Sears store in the U.S. marked down to $2.49 (a sign of the times?)

Coupon manager occupies a full 16k. The opening menu lists 18 catagories (Restaurants,Cleaning, Meat, Poultry, etc...). Upon selecting one catagory, you select from a sub-menu:

1. Add a coupon;
2. Delete a coupon;
3. List all entries under a catagory.

The opening menu will also permit you to list all the entries by store. When you "add a coupon", the program gives you an index number which you write on the coupon for filing purposes.

I already had a coupon file using the "organizer" program (also known as "vu-file"). Upon converting the coupon file to "coupon manager", I learned:

1. only 10 coupons per catagory are saved;
2. If you are like me, many catagories will be unused. (How many coupons have you seen for "poultry?"). It is therefore very wastefull of memory;
3. The search routine is slow (in basic);
4. The program does not record the value of the coupon;
5. It does not record the "store,description,start date, or expiry date". Since few if any coupons have start dates, this is also wastefull of memory and tedious to plow through.
6. Screen overflows occur (you have to use "cont").
7. You cannot search for expired coupons. This results in a manual search.
8. All in all the program is a disappointment. My "organizer" is much faster, and more flexible than Coupon Manager. It does not of course assign an index number, but then again I can assign it an arbitrary number as I do with the "organizer" and then input the number into to my program.

-LEO FOSS-

****

GENERAL

As I had indicated at the last monthy meeting in July/84, I had received a response from a South African Universal Sinclair Club. I have just recently received additional correspondence from that group asking that we establish a tape exchange between our two groups. I have written back to the Pres. indicating the problem of incompatability between the 2068 and the Spectrum, particularily in M/C programs. As well I indicated that for the most part our group owned and operated Zx-81's or the equivalent US Timex 1000's. In any event, we could exchange programs via the newsletter.

What I would like to do, if I receive sufficient assurances from the S.A. group, is to produce a tape of common public domain (to our inexpert knowledge) programs. This would have to be done and approved by the group. Please let me know by the next meeting (SEPT) or by mail.

By the way, the Pres. of the other group sent two letters he had received from Canada,U.S.A. and honorable mention to an individual Argentina. If this continues, we will become through letter writting or via the newsletter, an International club (of sorts). Let me know what you think.

The Editor--Roelof

ELECTRONIC BULLETIN BOARDS

In the way of a progress report, I am continuing to develop the T/S board via Baskerville, however, problems are being encountered but also being slowly resolved. The net total of T/S subscribers to the BBS to my knowledge is 5 persons. My are we ever growing strong! Thanks to Leo for his assistance and perserverance. Better luck with the next one John M.

Roelof

4th CORNER

In the last issue of the newsletter; Volume 1, Issue 2, a number of significant errors occurred in the presentation of screen 1 of the Multi-tasking program. So as to provide continuity and to correct the errors, scr. no. 1 is hereby resubmitted. As well, screens 2 through 4 are presented as the next installment.

```
SCREEN # 1
0 ( multi-tasker)
1
2 Decimal
3 10 constant max-tasks ( max tasks
allow.)
4 0 Variable task-list ( allocate task
list)
5 max-tasks 2 * allot ( zero position)
6 task-list max-tasks 1+ 2 * erase (
initialize)
7
8 ( display names of all active tasks )
9 : .tasks clearscreen ." active tasks"
10 max-tasks 0
11 do i 2 * task-list + @ ?dup
12 if cr i 1+ 2 .r 2 spaces
13 pfa nfa id. then
14 loop cr cr ;
15 -->
```

```
SCREEN # 2
 0 ( multi-tasker cont....)
1
2 ( examine the task list to match a
task's code field)
3 ( address a.k.a. cfa, return pointer
and/or flag.)
4 ( if found: cfa---addr t)
5 ( if not found: cfa---f)
6
7 : find-task 0
8 begin dup max-tasks -
9  while dup 2 * task-list + dup @ 4 pick
=
10 if rot rot 2drop 1 exit
11 then drop 1+
12 repeat 2drop 0 ;
13
14
15-->
```

```
SCREEN # 3
0 ( multi-tasker cont..)
1
2 ( add a background task to the task-list
)
3 ( used in the form: start cccc)
4
5 : start -find
6 here count type
7 if drop cfa 0 find-task
8 if ! ( **store cfa into task table)
9 ." ---added to task list"
10 else ." ---too many tasks" drop
11 then
12 else ." ---not in dictionary"
13 then cr ;
14
15-->
```

```
SCREEN # 4
0 ( multi-tasker cont..)
1 ( remove a task from task-list)
2 ( used in the form: kill cccc)
3 : kill -find
4 here count type
5 if drop cfa find-task
6 if dup 2+ swap
7 ( drag the rest of the task list over)
8 ( the task being removed, with zero at
end )
9 task-list max-tasks 1+ 2 * + 3 pick -
cmove
10 ." ---removed from task list"
11 else ." ---not in task list"
12 then
13 else ." ---not in dictionary"
14 then cr "
15 -->
```

MORE TO FOLLOW IN THE NEXT ISSUE !!!

Roelof

PERSONALS

DOWNLOADER

THIS UTILITY SAVES ON TAPE THE CONTENT OF MEMORY ABOVE RAMTOP AND LOADS IT BACK AT A LATER TIME IN THE ORIGINAL LOCATION. RAMTOP IS AUTOMATICALLY ADJUSTED AT LOAD TIME.

DOWNLOADER CAN BE USED TO BACKUP ANY M/C ROUTINE OR DATA THAT MAY BE ABOVE RAMTOP

STEP 1

ENTER THE BASIC PART OF THE PROGRAM. LINE 10 SHOULD BE A REM STATEMENT 80 CHARACTERS LONG. IF YOU ARE NOT USING QUICKTAPE, IGNORE LINES 270,280,290,370,380,AND 400. IF YOU DON'T HAVE A PRINTER IGNORE LINE 300.

STEP 2

GOTO 570 AND CAREFULLY ENTER THE FOLLOWING NUMBERS HORIZONTALLY, LINE BY LINE:

```
000,000,042,004,064,237,091,
016,064,019,019,019,019,019,019,
237,075,130,064,237,176,201,042,
016,064,035,035,035,035,035,035,
237,091,004,064,237,075,130,064,
237,176,201,234,127,205,035,015,
237,075,130,064,042,002,064,178,
237,066,034,002,064,237,115,172,
064,237,091,172,064,042,172,064,
175,237,066,249,235,237,176,201,
000.
```

STEP 3

VERIFY YOUR WORK BY ENTERING "GOTO 630".

STEP 4

SAVE THE PROGRAM. TO TEST, LOAD A UTILITY THAT LOCATES ITSELF ABOVE RAMTOP (TOOLKIT,ZXAS ETC.)

. LOAD DOWNLOADER AND RUN. RESE
RVED AREA ABOVE RAMTOP MUST FIT
IN A$.
IF DIM A$ DIFFERS FROM RESERVED
SPACE, ENTER (BREAK) WHEN ASKED
AND ADJUST LINE 30 ACCORDINGLY.
RUN AGAIN AND BE READY TO SAVE
WHEN PROMPTED.
SUBMITTED BY **M. BOULT**

```
  10 REM  =E RND GOSUB ?(RND<<<<
<< GOSUB ?L RND GOSUB KTAN E(RND7
77777 GOSUB ? RND GOSUB ?L RND GO
SUB KTAN REM KLN 7? GOSUB ?L RNDE
"RND GOSUB PI6"RND GOSUB ?G RND
GOSUB ?G RNDE G RND GOSUB PI RAND
FOR GOSUB KTAN VVVVVVVVVVVVVVVVV
  11 REM ----------
  12 REM DOWNLOADER V 1.1.
  13 REM MARCEL G BOULT
  14 REM ----------
  20 SLOW
  30 DIM A$(5122)
  40 LET RAM1=PEEK 16388
  50 LET RAM2=PEEK 16389
  60 LET RAMTOP=RAM1+256*RAM2
  70 LET TOP=32768-RAMTOP
  80 IF TOP>0 THEN GOTO 110
  90 PRINT "NOTHING ABOVE RAMTOP
"
 100 STOP
 110 PRINT "RESERVED AREA IS ";T
OP,"DIM A$ IS ";LEN A$
 120 PRINT "BREAK TO ADJUST A$ O
R","PRESS ENTER TO CONTINUE"
 130 IF INKEY$="" THEN GOTO 130
 140 FAST
 150 PRINT "TRANSFERRING RAMTOP+
"
 160 PAUSE 100
 170 POKE 16515,INT (TOP/256)
 180 POKE 16514,TOP-256*INT (TOP
/256)
 190 RAND USR 16516
 200 PRINT "RAMTOP ";RAMTOP;" (
";RAM1;",";RAM2;")"
 220 LET LSTRAM=RAMTOP
 230 PRINT "READY TO SAVE ON TAP
E."
 240 PRINT "ENTER PROGRAM NAME"
 250 INPUT P$
 260 PRINT P$
 270 PRINT "SLOW OR QUICKTAPE (S
/Q)"
 280 INPUT S$
 290 PRINT S$
 300 COPY
 310 PRINT "READY CASSETTE"
 320 PRINT "PRESS ENTER"
 330 SLOW
 340 IF INKEY$<>"" THEN GOTO 340
 350 IF INKEY$="" THEN GOTO 350
 360 CLS
 370 IF S$="Q" THEN GOTO 400
 380 SAVE P$
 390 GOTO 410
 400 RAND USR 8192
 420 LET RAMTOP=PEEK 16388+256*P
EEK 16389
 430 IF RAMTOP<>LSTRAM THEN GOTO
 500
 440 PRINT P$
 460 PAUSE 50
 470 RAND USR 16536
 480 PRINT "TRANSFER COMPLETE"
 490 STOP
 500 PRINT "RAMTOP BEING CHANGED
 TO"
 510 PRINT LSTRAM
 520 PAUSE 50
 530 POKE 16388,RAM1
 540 POKE 16389,RAM2
 550 RAND USR 16558
 552 SLOW
 560 GOTO 440
 565 REM ----------
 566 REM HEX LOADER
 567 REM ----------
 570 FOR I=16514 TO 16594
 580 INPUT N
 590 PRINT N;",";
 600 POKE I,N
 610 NEXT I
 620 STOP
 625 REM ----------
 626 REM HEX VIEWER
 627 REM ----------
 630 FOR I=16514 TO 16594
 640 PRINT PEEK I;",";
 650 NEXT I
```

HEX CONVERTER

If you are trying, as I am, to "get into" machine language programing and like me, you're going crazy converting decimal to hexidecimal and back, as well as endevoring to sort out the base 256 two byte number system that our computers employ, then here's one for you.

The program accepts any number and returns the approprite conversion. It is only necessary to preface each hex number with "H". all other entries are error checked and treated as decimal.

As well, all conversions from hex to decimal are accompanied by decimal numbers to be poked into the computers base 256 two byte registers.

I wrote this program more to help me understand the conversion process than to use for actual converting but with its error trapping and two-way conversions it can indeed be usefull.

By Jim Turner

```
  10 REM ****HEX CONVERTER *****
*************BY JIM TURNER******
  20 REM
  30 PRINT AT 10,10;"HEX CONVERTER
"
  40 PRINT ,,TAB 5;"ENTER DECIMA
L NUMBER OR          ""H"" THEN
HEX NUMBER"
  50 PRINT ,,"
  60 LET X$="0123456789ABCDEF"
  70 LET A=10
  80 LET B=11
  90 LET C=12
 100 LET D=13
 110 LET E=14
 120 LET F=15
 130 SCROLL
 140 INPUT N$
```

```
 150 GOTO 260
 160 SCROLL
 170 PRINT "DEC ";N;" = ";
 180 IF N>255 THEN GOTO 210
 190 PRINT X$(INT (N/16)+1);X$((
(N/16)-(INT (N/16)))*16+1);" HEX
"
 200 GOTO 140
 210 LET X1=INT (N/256)
 220 LET X2=((N/256)-INT (N/256)
)*256
 230 PRINT X$(INT (X1/16)+1);X$(
((X1/16)-(INT (X1/16)))*16+1);
 240 PRINT X$(INT (X2/16)+1);X$(
((X2/16)-(INT (X2/16)))*16+1);"
HEX"
 250 GOTO 130
 260 IF N$="" THEN GOTO 140
 270 IF N$(1)="H" THEN GOTO 330
 280 FOR X=1 TO LEN N$
 290 IF N$(X)<"0" OR N$(X)>"9" T
HEN GOTO 140
 300 NEXT X
 310 LET N=VAL N$
 320 GOTO 160
 330 LET N$=N$(2 TO )
 340 FOR X=1 TO LEN N$
 350 IF N$(X)<"0" OR N$(X)>"F" T
HEN GOTO 140
 360 NEXT X
 370 GOTO 380
 380 IF LEN N$>=4 THEN GOTO 410
 390 LET N$="0"+N$
 400 GOTO 380
 410 DIM W(2)
 420 LET 0$=N$
 430 LET P=1
 440 FOR X=1 TO 2
 450 LET Z$=0$(P TO P+1)
 460 LET V=VAL (Z$(1))*16+VAL (Z
$(2))
 470 LET W(X)=V
 480 LET P=P+2
 490 NEXT X
 500 SCROLL
 510 PRINT "HEX ";0$;" = ";W(1)*
256+(W(2));
 520 DIM W$(2,3)
 530 FOR X=1 TO 2
 540 LET W$(X)=STR$ W(X)
 550 FOR Z=1 TO LEN W$(X)
 560 LET W$(X,Z)=CHR$ (CODE (W$(
X,Z))+128)
 570 NEXT Z
 580 NEXT X
 590 PRINT TAB 17;" [illegible]";W$(2)
;"[illegible]";W$(1)
 600 SCROLL
 610 GOTO 140
 620 CLEAR
 630 SAVE "HEX CONVERTER"
 640 RUN
```

~~~~~~

% WAYS TO SKIN THAT CAT

(There%s often more than one)

By John Mathewson

```
   1 REM [illegible]
   5 PRINT "HOW MANY LOTTO 649 T
ICKETS?"
  10 INPUT R
  15 CLS
  20 DIM A(R)
  25 FOR Y=1 TO R
  30 FOR X=1 TO 6
  35 LET A(X)=1+INT (49*RND)
  40 NEXT X
  45 IF A(1)=A(2) OR A(1)=A(3) O
R A(1)=A(4) OR A(1)=A(5) OR A(1)
=A(6) THEN GO TO 30
  50 IF A(2)=A(3) OR A(2)=A(4) O
R A(2)=A(5) OR A(2)=A(6) THEN GO
 TO 30
  55 IF A(3)=A(4) OR A(3)=A(5) O
R A(3)=A(6) THEN GO TO 30
  60 IF A(4)=A(5) OR A(4)=A(6) T
HEN GO TO 30
  65 IF A(5)=A(6) THEN GO TO 30
  67 REM [illegible]
  70 PRINT "TICKET ";Y;":";TAB 1
0;A(1);TAB 14;A(2);TAB 18;A(3);T
AB 22;A(4);TAB 26;A(5);TAB 30;A(
6)
  75 PRINT
  80 NEXT Y
```

By: Jim Turner

Here is a program to choose your LOTO6/49 numbers for you.

As written, it runs on both the TS1000 and the 2068.

```
  10 CLS
  20 PRINT AT 21,0;"HOW MANY TIC
KETS? (MAX 11)"
  30 INPUT T
  40 CLS
  50 FOR N=1 TO T
  60 DIM A(6)
  70 FOR X=1 TO 6
  80 LET A(X)=INT (RND*49+1)
  90 IF X>1 THEN GOSUB 200
 100 PRINT ("[illegible]" AND X=1);TAB (X*
5-(1 AND A(X)>9)-2);A(X);(" - "
AND X<>6);("  [illegible]" AND X=6);
 110 NEXT X
 120 PRINT
 130 PRINT "[illegible]"
 140 NEXT N
 150 STOP
 200 FOR Z=1 TO X-1
 210 IF A(Z)=A(X) THEN GOTO 80
 220 NEXT Z
 230 RETURN
```

(Turn the page for a sample screen.)
~~~~~~

(sample screen from previous page)

35	26	19	31	18	20
21	45	28	18	24	35
4	37	13	29	43	9
38	33	10	43	34	5
42	47	48	3	46	44
49	41	35	18	16	12
21	33	49	42	9	40
37	40	32	5	21	33
23	6	37	45	7	8
4	46	34	8	16	3
38	19	20	47	32	49

PRINT FACILITIES

The following print facility is in essence a machine code version of the print facility outlined in the last newsletter. This one however has a number of very significant differences. Particularily, speed and the ability to print out text as well as graphics and it uses far less memory.

The best place to load this routine is in a REM statement in line 1 of your program. You must of course use a loader to load the machine code into the REM statement. The loader is as follows:

```
1 REM * total number of spaces to include
the print facility and the text and
graphics to be printed
10 LET a = 16514
20 FOR b = 0 to 3e4
30 INPUT a$
40 IF a$ = "s" then stop
50 POKE a + b , VAL a$
60 NEXT b
```

The machine code values to be loaded into the REM statement for the print facility is as follows:

225,126,35,229,254,255,200,205,
08,08,24,244,205,130,64,

After this code would come the code for the screen that you wish printed out. One important note of caution, each line of the screen must be stopped with the value of 118 for newline. If you do not do this then your program will CRASH. Another thing is that when you have finished coding in your screen, the last two bytes must be: 255,201,. This signifies end of code and return to basic.

The call to this m/c version of the print facility is PRINT USER 16526.

A sample of text: Do line 1 REM with 65 spaces.
Type in the loader program and input the following values and end your input with "s" to stop. Then run the program by Command PRINT USER 16526. HAPPY PROGRAMMING.

Values to be entered for sample program:

225,126,35,229,254,255,200,205,
08,08,24,244,205,130,64,53,55,46,51,57,00,
43,38,40,46,49,46,57,62,118,118,118,40,52,
53,62,00,55,46,44,45,57,118,118,118,00,00,
00,00,185,180,179,174,00,167,166,176,170,
183,118,118,255,201,

GOOD LUCK

ROELOF

ATTENTION ALL MEMBERS

FIRST ANNUAL
ZX-81/TS1000
PROGRAM COMPETION

Members are invited to submit to this our first annual program competition.

Rules

a) Programs must be originals.
b) Programs must fit in 16k.
c) Programs must be submitted on cassette.
d) Programs must be designated as either:

1) game
2) home/business
3) scientific/technical.

e) each program submitted must be accompanied by a $5.00 registration fee.
f) programs must be made available to the other members, who provide cassettes, free of charge.
g) programs must be presented by October 26,1984.

Prize

Registration fees received will be divided into 4 parts. One part will be awarded for each catagory. The remaining part will be awarded to the best overall program.

Programs will be judged by the executive and prizes distributed November 30,1984

Contest Administrator- Roger Glover-

##HUNT##

```
   1 REM  ******HUNT******
   2 REM HUNT THROUGH THE CAVES
TO OBTAIN TREASURES (*); ESCAPE
THE MONSTERS (M); GO THROUGH THE
 UPPER OR LOWER PORTALS(      )
TO GET TO THE NEXT CAVE; THEN AT
 LAST INTO THE TREASURE TROVE WH
ERE A SNAKE GUARDS THE MOTHER LO
DE.
   3 REM USE THE ARROW KEYS TO M
OVE; F TO FIRE THE ARROWS AND DI
RECT THE ARROWS TO KILL THE MONS
TERS WITH THE ARROW KEYS;RUN OVE
R TE TREASURE TO CARRY IT AND FI
NALLY YOU MAY EXCHANGE TREASURE
POINTS FOR ARROWS WHEN ASKED.
   5 DIM D(3,2)
   7 DIM T(20)
   8 LET Z$="YOU ARE IN THE ENTR
ANCE HALL"
  10 LET LR=0
  11 LET C$="                    "
  13 LET C$=C$+"        "
  15 LET C$=C$+"                    "
  20 LET ARR=5
  25 FOR I=1 TO 20
  30 LET T(I)=1
  35 NEXT I
  37 LET PS=0
  40 LET S=0
  55 LET Q=PEEK 16396+256*PEEK 1
6397+1
  60 LET TR=0
  65 RAND
  68 LET NOW=INT (RND*5000)
  70 LET B$="9BE9AF9DG9CHAHIBIJ"
  72 LET B$=B$+"CJKDEKEFLFGMGHN"
  74 LET B$=B$+"IOQJOPKPTLMRMNS"
  76 LET B$=B$+"LRDOOEPTUNQS9RS"
  80 LET R1=0
  82 LET R2=0
  84 LET R3=0
  95 GOTO 1300
 150 CLS
 160 REM CAVE PLOT
 162 RAND (PR*10+NOW)
 165 FOR I=0 TO 20
 170 LET IY=RND*16+2
 175 LET IX=RND*27+2
 180 PRINT AT IY,IX;"▀";
 185 IF RND>.5 THEN PRINT AT IY-
1,IX-1;CHR$ (128+RND*2);
 190 PRINT AT IY,IX+1;"▄";
 195 PRINT AT IY+1,IX;CHR$ (128+
RND*2);
 200 IF RND>.6 THEN PRINT AT IY+
1,IX+1;CHR$ 130;
 205 PRINT AT I,0;"▀";AT I,31;"▀
";
 210 NEXT I
 212 PRINT AT 0,1;C$;AT 20,1;C$;
 214 PRINT AT 0,17;R1;AT 20,17;R
2;
 215 LET N=11
 220 LET M=1
 222 IF T(PR)=1 THEN PRINT AT IY
,IX+1;"*";
 224 LET T(PR)=0
 225 REM DEMON PLOT
 230 LET DEM=INT (RND*4)
 235 FOR I=1 TO DEM
 240 LET D(I,1)=INT (RND*19+1)
 245 LET D(I,2)=INT (RND*30+1)
 250 PRINT AT D(I,1),D(I,2);"M";
 255 NEXT I
 265 REM HERO RUN
 275 PRINT AT N,M;"X";
 280 IF INKEY$<>"F" THEN GOTO 30
0
 285 IF ARR=0 THEN GOTO 300
 290 LET ARR=ARR-1
 295 GOSUB 1000
 298 PRINT AT 21,0;"ARROWS:";ARR
;
 300 LET N1=N
 305 LET M1=M
 310 LET M=M+(1 AND INKEY$="8")-
(1 AND INKEY$="5")
 315 LET N=N+(1 AND INKEY$="6")-
(1 AND INKEY$="7")
 320 LET Q1=PEEK (Q+33*N+M)
 325 IF Q1>62 THEN GOTO 2000
 330 IF Q1=23 AND TR<50 THEN LET
 TR=TR+10
 335 IF Q1=8 THEN GOTO 800
 338 IF ABS (10-N)=10 THEN GOTO
2000
 339 IF PR=21 THEN GOTO 355
 340 IF DEM=0 AND RND<.03 THEN L
ET DEM=1
 342 IF RND<.3+TR/200 THEN GOSUB
 1200
 345 PRINT AT N1,M1;" ";
 350 GOTO 265
 355 GOSUB 3000
 360 GOTO 345
 800 REM ROOM SWITCH
 805 CLS
 810 LET LR=PR
 812 IF PR<>21 THEN GOTO 815
 813 LET PR=INT (RND*19+1)
 814 GOTO 825
 815 IF N=0 THEN LET PR=R1
 820 IF N=20 THEN LET PR=R2
 822 IF PR=0 THEN GOTO 1505
 825 PRINT AT 3,2;"YOU ARE IN TH
ETUNNEL"
 830 PRINT AT 5,2;"BETWEEN ";LR;
" AND ";PR
 835 PRINT AT 8,2;"YOU HAVE ";AR
R;" ARROWS";
 840 PRINT AT 11,2;"YOUR SCORE I
S ";TR+S
 915 IF PR=21 THEN GOTO 2050
 920 LET R$=B$(PR*3-2)
 925 LET R1=CODE (R$)-37
 930 LET R$=B$(PR*3-1)
 935 LET R2=CODE (R$)-37
 940 LET R$=B$(PR*3)
 945 LET R3=CODE (R$)-37
 960 IF R1=LR THEN LET R1=R3
 965 IF R2=LR THEN LET R2=R3
 970 GOTO 150
1000 REM FIRE
1003 IF PR=21 THEN GOSUB 3000
1005 IF RND<.5 THEN GOSUB 1200
1010 LET F$=INKEY$
1015 IF F$="" OR F$="F" THEN GOT
O 1000
1020 LET Y1=N
1025 LET X1=M
1030 LET MY=0+(1 AND F$="8")-(1
AND F$="7")
1035 LET MX=0+(1 AND F$="8")-(1
AND F$="5")
1040 LET X1=X1+MX
1045 LET Y1=Y1+MY
1050 IF ABS (15-X1)=15 OR ABS (1
0-Y1)=10 THEN GOTO 1125
1053 IF PEEK (Q+33*Y1+X1)<>0 THE
N GOTO 1070
1055 PRINT AT Y1,X1;"+";
1060 PRINT AT Y1,X1;" ";
1065 GOTO 1040
```

```
1070 LET DHIT=DEM
1075 FOR I=1 TO DHIT
1080 LET Y=D(I,1)
1085 LET X=D(I,2)
1090 IF X<>X1 OR Y<>Y1 THEN GOTO
 1115
1095 PRINT AT Y1,X1;"■";
1098 LET S=S+5
1100 LET D(I,1)=D(DEM,1)
1105 LET D(I,2)=D(DEM,2)
1110 LET DEM=DEM-1
1115 NEXT I
1117 IF PR=21 THEN LET FX=X1
1118 IF PR=21 THEN LET FY=Y1
1120 PRINT AT Y1,X1;" ";
1125 RETURN
1200 REM DEMON RUN
1201 FOR I=1 TO DEM
1205 LET X=D(I,2)
1210 LET Y=D(I,1)
1215 PRINT AT Y,X;" ";
1220 LET Y=Y+SGN (N-Y)
1225 LET X=X+SGN (M-X)
1235 PRINT AT Y,X;"■";
1238 IF X=M AND Y=N THEN GOTO 20
00
1240 LET D(I,1)=Y
1245 LET D(I,2)=X
1250 NEXT I
1255 RETURN
1295 REM START
1300 PRINT "   THIS IS TREASURE-
HUNT",,,,,
1305 PRINT "  YOU ARE IN A NETWO
RK OF CAVES.",,
1310 PRINT "YOU ARE LOOKING FOR
GOLD.",,,
1315 PRINT "IF YOU ARE CAREFUL Y
OU MAY REACH",,
1320 PRINT "THE TREASURE ROOM, B
UT BEWARE:",,,
1325 PRINT "THERE ARE MONSTERS W
HICH WILL",,,
1330 PRINT "EAT YOU: EVEN TO TOU
CH THE ROCKS",,
1335 PRINT "MEANS INSTANT DEATH.
",,,,,
1340 PRINT Z$,,,
1342 PRINT "CHOOSE CAVE 1,2,3 OR
 4?",,
1345 INPUT PR
1350 IF PR<1 OR PR>4 THEN GOTO 1
345
1360 LET LR=0
1500 GOTO 915
1505 PRINT Z$,,,
1510 PRINT "YOUR TREASURE IS SAF
E HERE,",,,
1515 PRINT "YOUR SCORE IS ";S+TR
,,,,
1518 PRINT TAB 0;"YOU HAVE ";ARR
;" ARROOC.",,,,,
1520 PRINT TAB 0;"ARE YOU GOING
BACK IN?",,,,,
1525 INPUT F$
1530 IF F$="N0" THEN PRINT "YOU
SCORED ";S+TR
1535 IF F$="NO" THEN STOP
1540 LET S=S+TR
1545 LET TR=0
1550 PRINT "HOW MANY ARROWS DO Y
OU WANT?",,,
1560 PRINT "THEY ARE 4 POINTS EA
CH",,,
1570 INPUT F
1580 IF F*4>S THEN GOTO 1650
1590 LET S=S-F*4
1600 LET ARR=ARR+F
1610 GOTO 1342
1650 CLS
1655 PRINT "  YOU CANT AFFORD TH
EM",,,
1660 GOTO 1550
2000 REM DEATH OF A HERO
2005 CLS
2010 PRINT AT 5,1;"UNFORTUNATELY
 YOU HAVE PERISHED"
2015 PRINT AT 8,1;"YOU SCORED: "
;S+TR
2018 PRINT
2019 PRINT
2020 IF S+TR<50+PS THEN STOP
2025 LET S=S-15
2028 LET PS=S+TR
2029 PRINT "YOU PLAYED WELL: ",,
,
2030 PRINT "I SHALL DEDUCT 15"
2031 PRINT
2032 PRINT "FOR DAMAGE TO THE BO
DY";
2033 PRINT
2034 PRINT
2035 PRINT "YOU MAY CONTINUE";
2036 FOR I=1 TO 50
2037 NEXT I
2038 CLS
2040 GOTO 1505
2045 REM TREASURE ROOM
2050 PRINT AT 0,0;
2052 CLS
2055 FOR I=-10 TO 10
2058 LET AI=ABS I
2060 PRINT TAB 0;C$( TO AI);
2065 PRINT TAB (30-AI);C$( TO AI
)
2070 NEXT I
2075 PRINT AT 0,10;C$( TO 10)
2080 PRINT AT 20,10;C$( TO 10)
2085 PRINT AT 10,0;"▓";TAB 29;"▒
"
2086 LET DEM=1
2087 LET QW=INT (RND*4)
2090 FOR I=1 TO QW+1
2095 PRINT AT 12+I,12+(RND*2);"*
**";
2100 NEXT I
2105 LET N=10
2106 LET MY=-1
2107 LET MX=0
2108 LET K=18
2109 LET J=7
2110 LET M=2
2111 LET FX=J
2112 LET FY=K
2115 GOTO 265
2999 REM TRAP
3000 IF PEEK (0+33*(K+MY)+J+MX)=
0 THEN GOTO 3015
3002 LET AD=MY
3005 IF AD=0 THEN LET MY=MX
3006 IF AD=0 THEN LET MX=0
3007 IF AD<>0 THEN LET MY=0
3008 IF AD<>0 THEN LET MX=0-AD
3015 LET J=J+MX
3020 LET K=K+MY
3025 PRINT AT K,J;"▚";
3030 IF RND>.5 THEN PRINT AT FY,
FX;"▚"
3032 IF RND<.25 THEN GOSUB 1200
3035 RETURN
4000 REM
4010 REM
4020 REM SUBMITTED BY R. MULDER
4025 REM
4030 REM TAKEN OUT OF THE BRITIS
H SINCLAIR COMPUTING *NOW DEFUNC
T* OF 2 YEARS AGO
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